

**Apparatus and Method for Distributed Software
Implementation of OSPF Protocol**

ABSTRACT OF THE DISCLOSURE

5 The present invention is an OSPF flooding proxy mechanism for taking
advantage of a distributed hardware architecture to achieve a highly scaleable OSPF
implementation capable of supporting a large number of nodes in an area. Given the
widespread interest in MPLS explicit route based traffic engineering within an
autonomous system, and given that most TE mechanisms work best when complete
10 network topology is available, such an OSPF implementation is highly desirable. Also,
the next generation terabit router architectures with multiple levels of processor
hierarchies and spanning multiple shelves make such protocol implementations very
compelling. One embodiment of the invention includes an apparatus for communicating
an intra-autonomous system link state routing protocol with nodes in a network. The
15 apparatus includes a controller having at least one processor associated therewith for
performing route calculation and maintaining a link state database of said network. At
least one delegate port card is coupled to the controller and has at least one separate
processor associated therewith. The delegate port card has selected software
functionality of the intra-AS link state routing protocol assigned thereto. The delegate
20 port card is operable to process communications associated with said selected software
functionality substantially independently of said controller.